
**GROUNDWATER TREATMENT SYSTEM
QUARTERLY MONITORING REPORT
FOURTH QUARTER 2001**

US EPA RECORDS CENTER REGION 5



**AMERICAN CHEMICAL SERVICE NPL SITE
GRIFFITH, INDIANA**

MWH File No. 2090601

Prepared For:

**American Chemical Service NPL Site RD/RA Executive Committee
Griffith, Indiana**

Prepared By:

**MWH
27755 Diehl Road, Suite 300
Warrenville, Illinois 60555**

October 2002



MWH
MONTGOMERY WATSON HARZA

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Prepared For:

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Griffith, Indiana**

Prepared by:

Travis Klingforth

Travis Klingforth, EIT
Project Engineer

10/2/02

Date

Approved by:

Peter Vagt

Peter Vagt, Ph.D., CPG
Project Manager

October 2, 2002

Date

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1.0 INTRODUCTION

MWH, on behalf of the ACS RD/RA Executive Committee, started up the on-site groundwater treatment system at the American Chemical Service NPL Site (ACS Site) in Griffith, Indiana on March 13, 1997. The groundwater treatment plant (GWTP) system was designed to treat groundwater from the Perimeter Groundwater Containment System (PGCS) and the Barrier Wall Extraction System (BWES). The original treatment consisted of a phase-separator for oil and free product removal, equalization tanks, a UV-oxidation unit for destruction of organic constituents, and an air stripper to remove methylene chloride and other organics. The treatment also included a chemical precipitation and clarification unit to remove metals, a sand filter to remove suspended solids, and activated carbon vessels for final polishing of the treated groundwater.

In 2001 an activated sludge treatment process was added to the process to reduce the volatile and semivolatile organic compounds (VOCs and SVOCs) in the collected groundwater. The activated sludge treatment process also reduces the amount of activated carbon required in the treatment process. An aerated equalization tank was also added to the GWTP in 2001 to remove VOCs from the collected groundwater, oxidize metals to increase metals removal efficiency in the chemical precipitation unit, and equalize groundwater flow through the GWTP. The activated sludge system and aeration tank have been fully integrated into the process along with the other upgrade components. Startup and optimization of the catalytic oxidizer/scrubber air treatment unit was also conducted during the first quarter of 2001.

The treated effluent from the treatment system is discharged to the nearby wetlands, west of the treatment system, in accordance with Agency approvals. This Groundwater Treatment System report summarizes effluent analytical data and water level gauging data collected from October 2001 through December 2001. This report also summarizes any modifications or upgrades to the GWTP during the reporting period.

2.0 COMPLIANCE MONITORING

2.1 INTRODUCTION

Effluent samples were collected from the treatment system to demonstrate compliance with the discharge limits (Table 2.1) established by Indiana Department of Environmental Management (IDEM) and United States Environmental Protection Agency (U.S. EPA). The approved Performance Standard Verification Plan (PSVP) requires quarterly effluent sampling for biological oxygen demand (BOD), total suspended solids (TSS), SVOCs, metals, and polychlorinated biphenyls (PCBs) in the system, and monthly effluent sampling for VOCs, as shown in the table below. To gather additional information, the effluent sampling was conducted on a monthly basis for all analytes. The samples will continue to be collected on a monthly basis until the treatment system is operating in a relatively steady state after completion and optimization of the groundwater treatment plant upgrades.

Sampling and analyses were performed in accordance with the Agency-approved PSVP Quality Assurance Project Plan (QAPP) prepared by MWH for the ACS RD/RA Executive Committee in April 1997. Quality control measures were also instituted in accordance with the PSVP and QAPP. The following table and paragraphs present details on sampling and analyses, and also summarize the analytical data for the treatment system effluent.

Sampling Frequency Schedule – Groundwater Treatment System

Analytes	Cumulative Time From Startup*	Frequency
Flowrate and pH	–	Continuous
BOD, TSS, SVOCs and Metals	181 days onward	Once per quarter
VOCs	31 days onward	Once per month
PCBs	181 days onward	Once per quarter
PCBs in Sediment (one location)	–	Once per year

*Note: System was started up on March 13, 1997

2.2 SAMPLING AND ANALYSES

Effluent samples were collected each month during the fourth quarter 2001. Samples were collected on the following dates for this reporting period:

- October 16, 2001
- November 13, 2001
- December 19, 2001

The above samples were collected directly from a sample tap on the effluent line of the treatment system.

The samples were placed in contaminant-free containers, in accordance with the U.S. EPA Specifications and Guidance for Obtaining Contaminant-Free Sample Containers (U.S. EPA, 1992). Appropriate sample containers and preservatives, as specified in the QAPP, were used to collect and preserve the samples. Following sample collection, the sample containers were refrigerated at or below 4° C in coolers. Chain-of-Custody forms were prepared to track the transfer of samples from the treatment system to the laboratories. In accordance with the approved QAPP, the effluent water samples were analyzed for the following parameters by the following analytical methods:

<u>Parameter</u>	<u>Analytical Method</u>
VOCs	SW-846 8260B
SVOCs	SW-846 8270C
Pentachlorophenol	SW-846 8270C and SIM
Pesticides/PCBs	EPA 608/SW-846 8081/8082
Metals (Excluding Mercury)	SW-846 6010
General Water Quality Parameters (TSS and BOD-5)	EPA 160.2 and 405.1
Mercury	SW-846 7470
pH	EPA 150.1

2.3 ANALYTICAL RESULTS

GWTP Effluent Samples

The effluent monitoring data, summarized in Table 2.2, verifies that the system effluent was consistently compliant with the discharge limits presented in Table 2.1. No exceedences were reported for the Fourth Quarter 2001 sampling events. The analytical data sheets for the compliance samples are provided in Appendix A.

Compuchem Laboratory of Cary, North Carolina analyzed the data. Laboratory Data Consultants (LDC) of Carlsbad, California performed third party data validation in accordance with the U.S. EPA National Functional Guidelines for Organic/Inorganic Data Review. Validation qualifiers are listed in Table 2.2 and are written in the margin of the analytical data sheets provided in Appendix A.

The “non-detect” result for the November 13, 2001 sample for the analyte 2-butanone has been flagged “R” by LDC for “rejected” due to low relative response factor values. This is a common problem for 2-butanone and other ketones. This issue has arisen before and been discussed in previous quarterly reports (for example, see Section 2.3 of Second Quarter 2001 Groundwater Treatment System Quarterly Monitoring Report, MWH, December 2001). As reported in the First Quarter 2001 Groundwater Treatment System Quarterly Monitoring Report, a new QAPP was submitted to the Agencies in March 2001 and was approved November 2001. It was first implemented in January 2002 and contains updated protocols that have addressed this issue.

3.0 TREATMENT SYSTEM PROCESS MODIFICATIONS

During the fourth quarter of 2001, the GWTP continued to treat groundwater collected by the BWES and PGCS. During this monitoring period, no equipment or process modifications were made to the GWTP.

4.0 PGCS AND BWES GAUGING ACTIVITIES

The PGCS trench groundwater extraction wells were operated in "auto" mode throughout the months of October, November, and December 2001. In "auto" mode, each of the PGCS extraction wells are set to turn on or off automatically based on water levels within the Aeration Equalization Tank (T-102) and the individual extraction wells. This mode is used to control the flowrate through the treatment system. The GWTP also received influent from the BWES during the fourth quarter 2001.

MWH is in the process of revising the Long-Term Groundwater Monitoring Plan and incorporating the water-level measurement requirements of the PSVP, as described below. In the meantime, MWH continues to regularly monitor water levels inside the barrier wall. Figure 4.1 shows the water levels as measured on November 30, 2001. Piezometers P32, P49, and P96 were measured regularly throughout the quarter, as they have been in the past. In addition, piezometers P29, P36, P108, P110, P112, P116, and P118 were added to the regular monitoring regime in November 2001. The water levels from these piezometers are shown in Table 4.1 and are depicted graphically on Figures 4.2 and 4.3.

In late 2001, MWH revised the long-term groundwater monitoring program. The revisions included changing the frequency of collecting groundwater levels and analyzing groundwater samples from quarterly basis to a semi-annual basis. In the past, groundwater levels were collected from piezometers outside the barrier wall for the Groundwater Treatment System Quarterly Monitoring Report at the same time as groundwater levels for the groundwater monitoring program. Because of the change in the groundwater monitoring program, water levels from piezometers outside the barrier wall were not collected for the fourth quarter 2001.

TMK/JDP/RAA/PJV
J:\209\0601 ACS\0116 GWTP\6010116a069.doc
2090603.030102



Table 2.1
Groundwater Treatment System Effluent Discharge Limits
American Chemical Service NPL Site
Griffith, Indiana

Groundwater Quality Parameter	Effluent Standard (Limit)
General Water Quality Parameters	
pH	6 - 9 S.U.
BOD-5	30 mg/L
TSS	30 mg/L
Inorganics	
Arsenic	50 µg/L
Beryllium	NE
Cadmium	4.1 µg/L
Manganese	NE
Mercury	0.02 µg/L (w/DL = 0.64)
Selenium	8.2 µg/L
Thallium	NE
Zinc	411 µg/L
Volatile Organics	
Acetone	6,800 µg/L
Benzene	5 µg/L
2-Butanone	210 µg/L
Chloromethane	NE
1,4 – Dichlorobenzene	NE
1,1 – Dichloroethane	NE
1,2 – Dichloroethene – cis	70 µg/L
Ethylbenzene	34 µg/L
Methylene chloride	5 µg/L
Tetrachloroethene	5 µg/L
Trichloroethene	5 µg/L
Vinyl chloride	2 µg/L
4 – Methyl - 2 – pentanone	15 µg/L
Semi-Volatile Organics	
bis(2 – Chloroethyl) ether	9.6 µg/L
bis(2 – Ethylhexyl) phthalate	6 µg/L
Isophorone	50 µg/L
4 – Methylphenol	34 µg/L
Pentachlorophenol	1 µg/L
PCBs	
PCBs	0.00056 µg/L (w/DL = 0.1 to 0.9)

Notes:

NE = No effluent limit established.

DL = Detection limit

S.U. = Standard Units (pH)

µg/L = micrograms per liter

mg/L = micrograms per liter

Table 2.2
Summary of Effluent Analytical Results - Fourth Quarter 2001
Groundwater Treatment System
American Chemical Service NPL Site
Griffith, Indiana

Event Date	Month 53 10/16/01	Month 54 11/13/01	Month 55 12/19/01	Effluent Limits	Lab Reporting
pH	7.61 /J	7.61 /J	6.93	6-9	none
TSS	2.00	ND	10.0	30	10
BOD	ND	2.9	25	30	2
Arsenic	ND	ND	ND	50	3.4
Beryllium	ND	0.89 B/U	ND	NE	0.2
Cadmium	ND	ND	ND	4.1	0.3
Manganese	1.6 B/	21.0	193	NE	10
Mercury	ND	ND	ND	0.02 (w/DL = 0.64)	0.64
Selenium	1.9 B/U	ND	2.8 B/U	8.2	4.3
Thallium	ND	ND	ND	NE	5.7
Zinc	ND	ND	11.3 B/U	411	1.2
Benzene	0.02 J/	ND	ND	5	0.5
Acetone	1 JB/3 UJ	2,500 D/J	240 DB/J	6,800	3
2-Butanone	1 JB/3 UJ	ND/R	27 J/	210	3
Chloromethane	ND	ND	ND	NE	0.5
1,4-Dichlorobenzene	ND	ND	ND	NE	0.5
1,1-Dichloroethane	ND	ND	ND	NE	0.5
cis-1,2-Dichloroethene	ND	ND	ND	70	0.5
Ethylbenzene	ND	ND	ND	34	0.5
Methylene chloride	0.4 JB/0.5 U	3 B/U	0.5 J/	5	0.6
Tetrachloroethene	ND	ND	ND	5	0.5
Trichloroethene	0.03 JB/0.5 U	ND	ND	5	0.5
Vinyl chloride	ND	ND	ND	2	0.5
4-Methyl-2-pentanone	ND	ND	ND/UJ	15	3
bis (2-Chloroethyl) ether	ND	ND	ND	9.6	9.6
bis(2-Ethylhexyl) - phthalate	1 J/	1.8 JB/9.2U	ND	6	6
4 - Methylphenol	ND	ND	ND	34	10
Isophorone	ND	ND	ND	50	10
Pentachlorophenol	ND /UJ	ND	0.061 J/	1	1
PCB/Aroclor-1016	ND /UJ	ND	ND	0.00056 (w/DL = 0.1 to 0.9)	0.5
PCB/Aroclor-1221	ND /UJ	ND	ND	0.00056 (w/DL = 0.1 to 0.9)	0.92*
PCB/Aroclor-1232	ND /UJ	ND	ND	0.00056 (w/DL = 0.1 to 0.9)	0.5
PCB/Aroclor-1242	ND	ND	ND	0.00056 (w/DL = 0.1 to 0.9)	0.5
PCB/Aroclor-1248	ND	ND	ND	0.00056 (w/DL = 0.1 to 0.9)	0.5
PCB/Aroclor-1254	ND	ND	ND	0.00056 (w/DL = 0.1 to 0.9)	0.5
PCB/Aroclor-1260	ND	ND	ND	0.00056 (w/DL = 0.1 to 0.9)	0.5

Notes:

Data has been validated in accordance with the U.S. EPA National Functional Guidelines for Organic Data Review

Shaded cells indicate discharge exceedances

pH data is expressed in S.U.

TSS and BOD5 data is expressed in mg/L

Metals, VOC, SVOC and PCB data is expressed in ug/L

ND = Not detected

NE = No effluent limit established.

NA = Sample not analyzed for this compound

* = Approved SW-846 method is incapable of achieving effluent limit.

Suffix Definitions:

/ = Data qualifier added by laboratory

/_ = Data qualifier added by data validator

B = Compound is also detected in the blank

E = Compound exceeds the upper level of calibration range of instrument

J = Result is detected below the reporting limit and is an estimated concentration

Q = Sample was analyzed out of the recommended holding time

R = Quality control indicates the data is not usable

JB = Analyte is detected in the compliance sample below the reporting limit and is an estimated concentration and the compound is also detected in the method blank resulting in a potential high bias

U = Analyte is not detected at or above the indicated concentration

UB = Analyte is not detected at or above the indicated concentration due to blank contamination

UJ = Indicates the compound or analyte was analyzed for but not detected. The sample detection limit is an estimated value

D = Result obtained after diluting sample

Table 4.1
Water Levels Inside Barrier Wall - Fourth Quarter 2001
American Chemical Service NPL Site
Griffith, Indiana

Date	On-Site Area				
	P-29	P-32	P-36	P-49	P-108
5-Oct-01	NA	636.42	NA	634.18	NA
12-Oct-01	NA	636.32	NA	635.68	NA
19-Oct-01	NA	636.02	NA	635.08	NA
9-Nov-01	NA	634.62	NA	632.68	NA
16-Nov-01	NA	634.22	NA	632.38	NA
30-Nov-01	634.37	634.52	634.89	633.28	635.03
7-Dec-01	634.17	634.32	634.99	633.88	634.13
17-Dec-01	633.97	634.22	634.89	633.58	634.33
21-Dec-01	633.87	634.02	634.59	632.88	633.83
28-Dec-01	633.67	633.92	634.49	632.48	633.63

Date	Off-Site Area				
	P-96	P-110	P-112	P-116	P-118
5-Oct-01	628.89	NA	NA	NA	NA
12-Oct-01	631.09	NA	NA	NA	NA
19-Oct-01	627.79	NA	NA	NA	NA
9-Nov-01	631.59	NA	NA	NA	NA
16-Nov-01	631.69	NA	NA	NA	NA
30-Nov-01	627.89	631.78	631.36	631.96	631.42
7-Dec-01	627.49	631.68	631.16	631.56	630.92
17-Dec-01	623.99	630.98	630.26	631.56	630.72
21-Dec-01	623.19	632.28	629.86	629.36	630.12
28-Dec-01	627.49	631.28	630.56	631.36	630.62

Notes:

NA = Not sampled.

All water level elevations are in feet AMSL

FIGURES



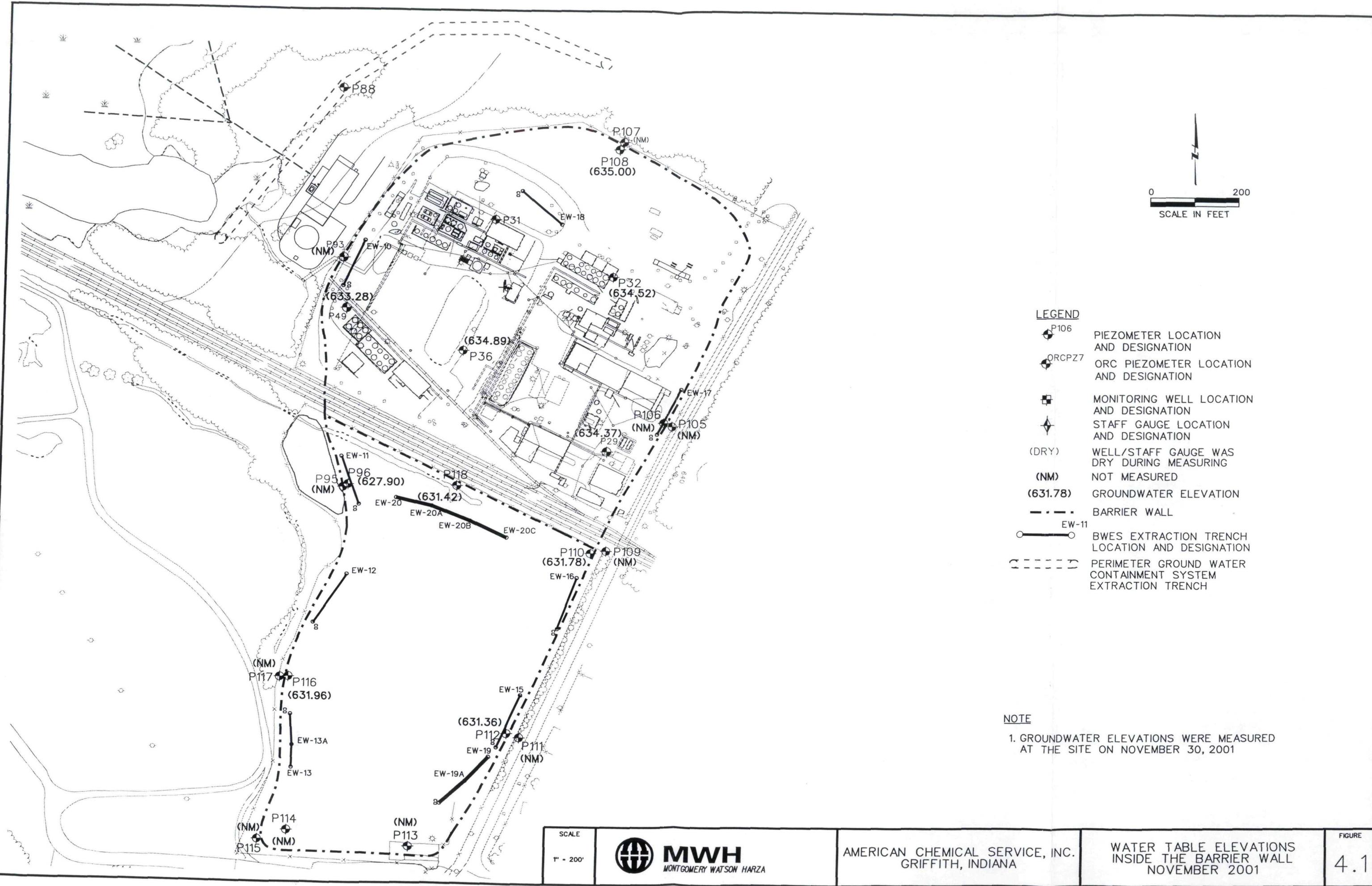


Figure 4.2
Water Level Trends Inside Barrier Wall (On-Site Area)
ACS NPL Site
Griffith, Indiana

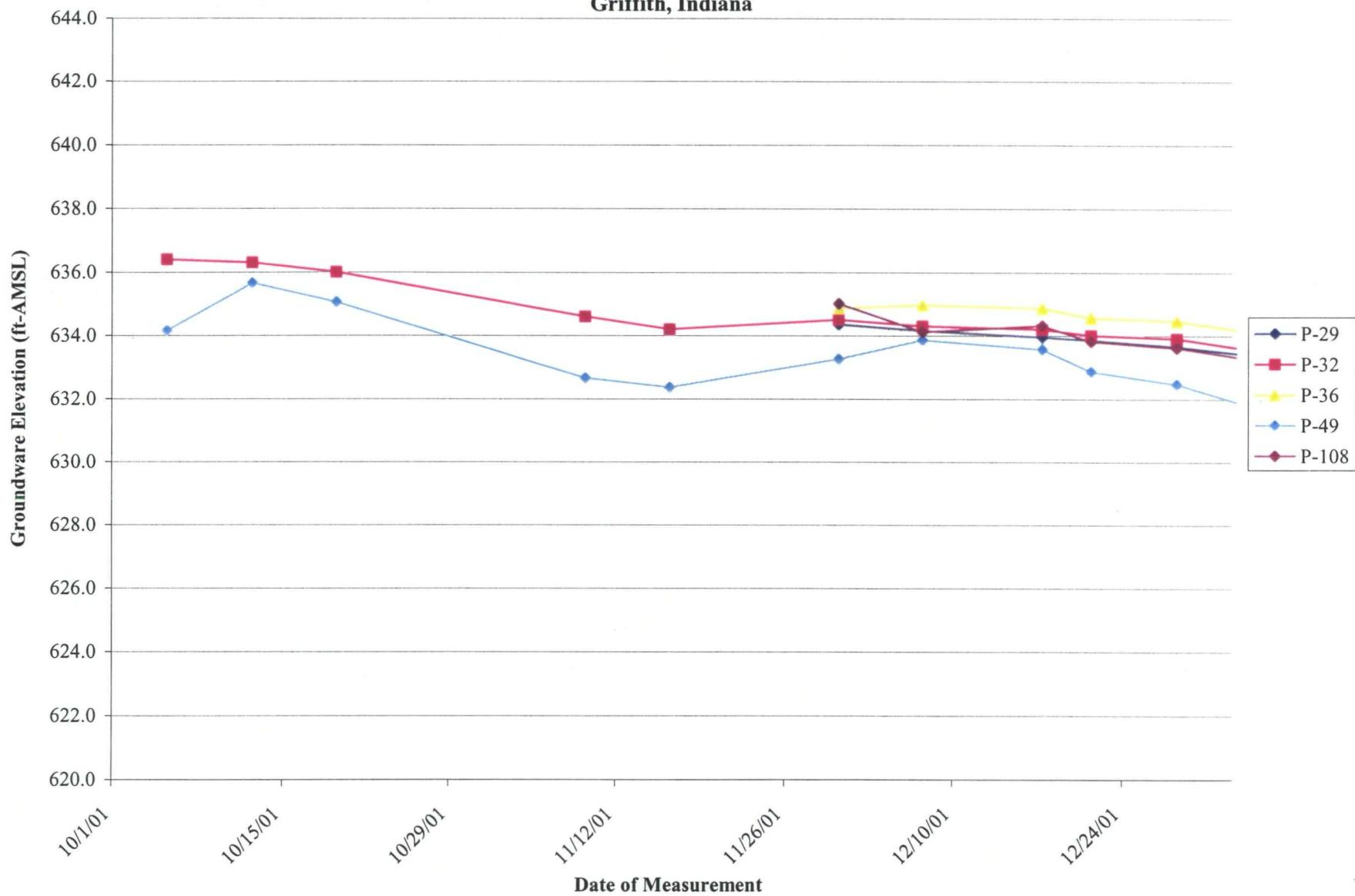
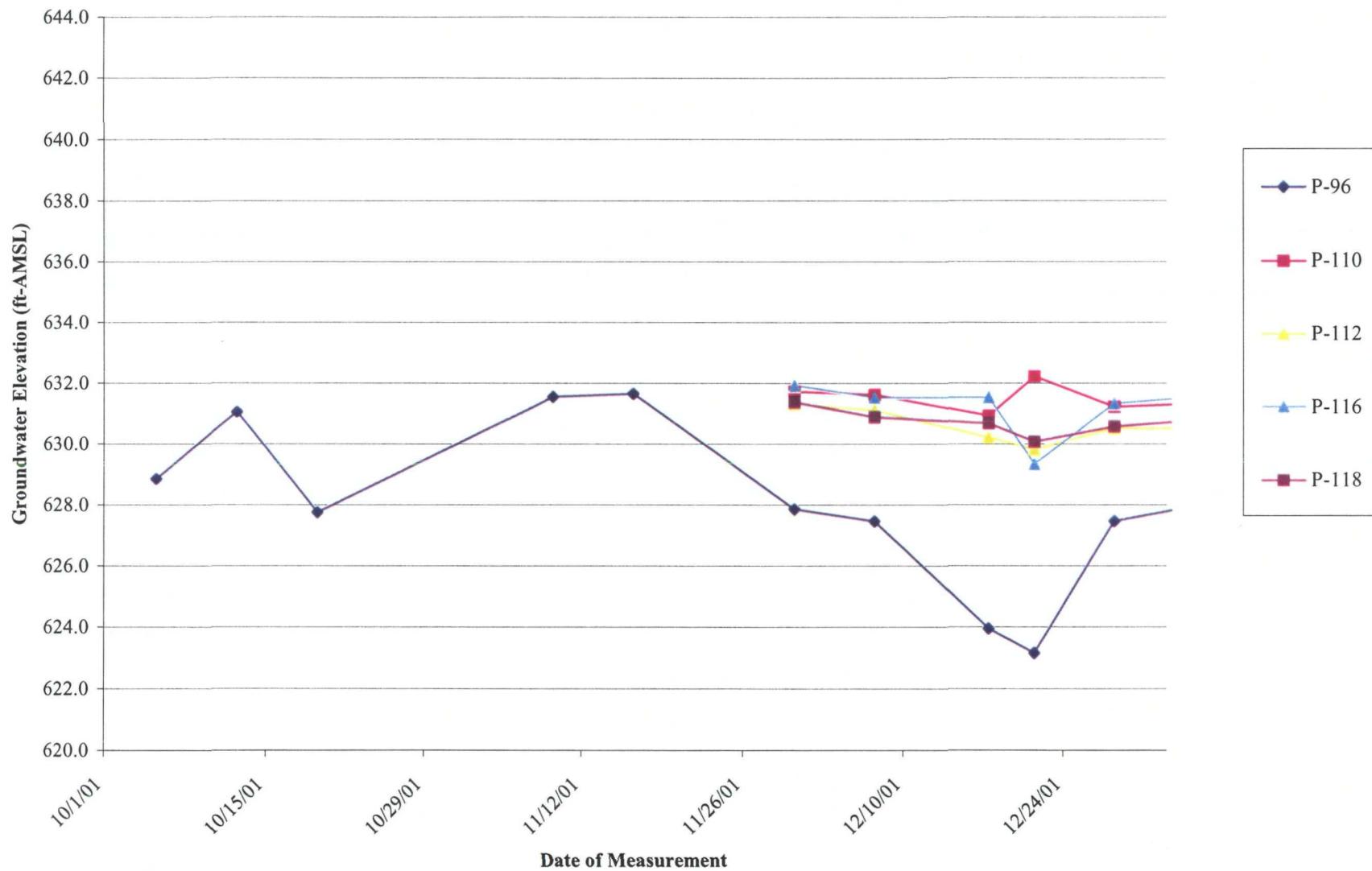


Figure 4.3
Water Level Trends Inside Barrier Wall (Off-Site Area)
ACS NPL Site
Griffith, Indiana





APPENDIX A

EFFLUENT ANALYTICAL DATA

**October 16, 2001 Compliance Sample
Laboratory Results**

SW-846

1-CC

CLASSICAL CHEMISTRY ANALYSES DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: CompuChem

Contract: _____

Lab Code: LIBERTY

Case No.: _____

NRAS No.: _____

OG No.: QP1024

Matrix (soil/water): WATER

Lab Sample ID: QP1024-1

Date Received: 10/17/01

% Solids: 0.00

Concentration Units (mg/L or mg/kg dry weight): pH units

PARAMETER	CONCENTRATION	C	Q	M	DATE ANALYZED
pH	7.610				10/26/01
TSS	2.00				10/22/01

✓
11/13/01

Comments:

**TRITEST, INC.
3909 Beryl Road
Raleigh, NC 27607**

**Telephone: (919) 834-4984
Fax: (919) 834-6497**

**NC/WW Cert. #: 067
NC/DW Cert. #: 37731**

Laboratory Report

--- Prepared for ---

**Mr. Rob Gates
Compuchem
501 MADISON AVENUE
CARY, NC 27513**

1 of 1

**Report Date: 10/25/01
Date Received: 10/17/01**

Work Order #: 0110-01111

**Project ID: 01
Project ID: EFFLUENT / ACS-89**

**Cust. Code: CO1628
Cust. P.O.#:**

No.	Sample ID	Date Sampled	Time Sampled	Matrix	Condition
0	EFFLUENT	10/16/01	15:30	WW	45°C
<hr/>					
Test Performed	Method	Results	Analyzed	Qualifier	
Biochemical Oxygen Demand	EPA 405.1	<2.0 mg/L	10/18/01		

[Signature]
11/13/01

Report Certified by:

[Signature]
for Tritest, Inc.

SW846 METALS

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: _____

Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: QP1024

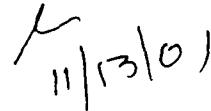
Matrix (soil/water): WATER Lab Sample ID: QP1024-1

Level (low/med): LOW Date Received: 10/17/01

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7440-38-2	Arsenic	3.0	U		P
7440-41-7	Beryllium	0.10	U		P
7440-43-9	Cadmium	0.20	U		P
7439-96-5	Manganese	1.6	B		P
7439-97-6	Mercury	0.64	U		CV
7782-49-2	Selenium	1.9	B	U	P
7440-28-0	Thallium	3.4	U		P
7440-66-6	Zinc	0.90	U		P



 11/13/01
Color Before: COLORLESS Clarity Before: CLEAR Texture: _____Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QP1024

Matrix: (soil/water) WATER Lab Sample ID: QP1024-1

Sample wt/vol: 25 (g/ml) ML Lab File ID: QP1024-1A71

Level: (low/med) LOW Date Received: 10/17/01

% Moisture: not dec. Date Analyzed: 10/29/01

Column: SPB-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3-----	Chloromethane	0.5	U
75-01-4-----	Vinyl Chloride	0.5	U
74-83-9-----	Bromomethane	0.5	U
75-00-3-----	Chloroethane	0.5	U
75-35-4-----	1,1-Dichloroethene	0.5	U
75-15-0-----	Carbon disulfide	0.5	U
67-64-1-----	Acetone	1	JB 3 uJ
75-09-2-----	Methylene Chloride	0.4	JB 0.5 uK
156-60-5-----	trans-1,2-Dichloroethene	0.5	U
75-34-3-----	1,1-Dichloroethane	0.5	U
156-59-2-----	cis-1,2-Dichloroethene	0.5	U
78-93-3-----	2-butanone	1	JB 3 uJ
67-66-3-----	Chloroform	0.5	U
71-55-6-----	1,1,1-Trichloroethane	0.5	U
56-23-5-----	Carbon Tetrachloride	0.5	U
71-43-2-----	Benzene	0.02	J
107-06-2-----	1,2-Dichloroethane	0.5	U
79-01-6-----	Trichloroethene	0.03	JB 0.5 uK
78-87-5-----	1,2-Dichloropropane	0.5	U
75-27-4-----	Bromodichloromethane	0.5	U
10061-01-5-----	cis-1,3-Dichloropropene	0.5	U
108-10-1-----	4-Methyl-2-pentanone	3	U
108-88-3-----	Toluene	0.3	JB 0.5 uK
10061-02-6-----	trans-1,3-Dichloropropene	0.5	U
79-00-5-----	1,1,2-Trichloroethane	0.5	U
127-18-4-----	Tetrachloroethene	0.5	U
591-78-6-----	2-hexanone	3	U
124-48-1-----	Dibromochloromethane	0.5	U
108-90-7-----	Chlorobenzene	0.04	JB 0.5 uK
100-41-4-----	Ethylbenzene	0.5	U
108-38-3-----	m,p-Xylene	1	U
95-47-6-----	o-Xylene	0.5	U
100-42-5-----	Styrene	0.5	U

FORM I VOA

11/13/01

12

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Method: 8260B

Lab Code: LIBRTY Case No.: SAS No.: SDG No.: QP1024

Matrix: (soil/water) WATER Lab Sample ID: QP1024-1

Sample wt/vol: 25 (g/ml) ML Lab File ID: QP1024-1A71

Level: (low/med) LOW Date Received: 10/17/01

Moisture: not dec. Date Analyzed: 10/29/01

GC Column: SPB-624 ID: 0.32 (mm) Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg)	UG/L	Q
75-25-2-----	Bromoform		0.5	U
79-34-5-----	1,1,2,2-Tetrachloroethane		0.5	U
106-46-7-----	1,4-Dichlorobenzene		0.5	U
540-59-0-----	1,2-Dichloroethene (total)		0.5	U
1330-20-7-----	Xylene (total)		0.5	U

FORM I VOA

11/13/01

13

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM

Contract:

Lab Code: LIBRTY Case No.:

SAS No.:

SDG No.: QP1024

Matrix: (soil/water) WATER

Lab Sample ID: QP1024-1

Sample wt/vol: 1025 (g/mL) ML

Lab File ID: QP1024-1B64

Level: (low/med) LOW

Date Received: 10/17/01

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 10/18/01

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 10/18/01

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

HPLC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Q

CAS NO.	COMPOUND		
111-44-4-----	Bis(2-chloroethyl)ether	9.4	U
106-44-5-----	4-Methylphenol	9.8	U
78-59-1-----	Isophorone	9.8	U
117-81-7-----	bis(2-ethylhexyl)Phthalate	1	J

11/13/01

FORM I SV

8270C

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

Lab Name: COMPUCHEM

Contract:

EFFLUENT

Lab Code: LIBRTY Case No.:

SAS No.:

SDG No.: QP1024

Matrix: (soil/water) WATER

Lab Sample ID: QP1024-1

Sample wt/vol: 1025 (g/mL) ML

Lab File ID: QP1024-1B70

Level: (low/med) LOW

Date Received: 10/17/01

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 10/18/01

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 10/27/01

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

HPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Q

CAS NO.	COMPOUND			
87-86-5-----	Pentachlorophenol	0.98	U	UJ

11/13/01

FORM I SV

1D
GC EXTRACTABLE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Lab Name: COMPUCHEM

Contract: PCB 8082

EFFLUENT

Lab Code: LIBRTY Case No.:

SAS No.: SDG No.: QP1024

Matrix: (soil/water) WATER

Lab Sample ID: QP1024-1

Sample wt/vol: 1070 (g/mL) ML

Lab File ID: _____

Moisture: _____ decanted: (Y/N) _____

Date Received: 10/17/01

Extraction: (SepF/Cont/Sonc) SEPF

Date Extracted: 10/18/01

Concentrated Extract Volume: 5000 (uL)

Date Analyzed: 10/19/01

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

PC Cleanup: (Y/N) N pH: _____

Sulfur Cleanup: (Y/N) N

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

CAS NO.	COMPOUND			
12674-11-2-----	Aroclor-1016	0.23	U	U
11104-28-2-----	Aroclor-1221	0.47	U	↓
11141-16-5-----	Aroclor-1232	0.23	U	
53469-21-9-----	Aroclor-1242	0.23	U	
12672-29-6-----	Aroclor-1248	0.23	U	
11097-69-1-----	Aroclor-1254	0.23	U	
11096-82-5-----	Aroclor-1260	0.23	U	

11/13/01

**November 13, 2001 Compliance Sample
Laboratory Results**

SW-846

1-CC

CLASSICAL CHEMISTRY ANALYSES DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: CompuChem Contract: _____

Lab Code: LIBRTY Case No.: _____ NRAS No.: _____

SD No.: RS1024

Matrix (soil/water): WATER Lab Sample ID: RS1024-1

Date Received: 11/14/01 % Solids: 0.00

Concentration Units (mg/L or mg/kg dry weight): mg/L

PARAMETER	CONCENTRATION	C	Q	M	DATE ANALYZED
TSS	1.00	U			11/15/01
pH	7.610				11/16/01

VJ

Comments:

**3909 Beryl Road
Raleigh, NC 27607**

**Telephone: (919) 834-4984
Fax: (919) 834-6497**

**NC/WW Cert. #: 067
NC/DW Cert. #: 37731**

Laboratory Report

**— Prepared for —
Mr. Rob Gates
Compuchem
501 MADISON AVENUE
CARY, NC 27513**

1 of 1

**Report Date: 11/26/01
Date Received: 11/14/01**

Work Order #: 0111-00688

**Project ID: 01
Project ID: ACS-89**

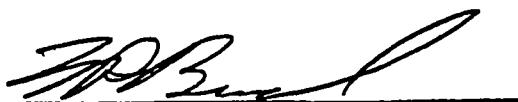
**Cust. Code: CO1628
Cust. P.O.#:**

No.	Sample ID	Date Sampled	Time Sampled	Matrix	Condition
001	ACS-89 EFFLUENT	11/13/01	15:00	WW	452°C

Test Performed	Method	Results	Analyzed	Qualifier
Biochemical Oxygen Demand	EPA 405.1	2.9 mg/L	11/15/01	

1/24/01

Report Certified by:



for Tritest, Inc.

SW-846 METALS

1

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM Contract: _____

Lab Code: LIBRTY Case No.: _____ SAS No.: _____ SDG No.: RS1024

Matrix (soil/water): WATER Lab Sample ID: RS1024-1

Level (low/med): LOW Date Received: 11/14/01

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	79.8	B		P
7440-36-0	Antimony	5.6	B		P
7440-38-2	Arsenic	3.0	U		P
7440-39-3	Barium	64.4			P
7440-41-7	Beryllium	0.89	B		P
7440-43-9	Cadmium	0.40	U		P
7440-70-2	Calcium	55100			P
7440-47-3	Chromium	0.90	U		P
7440-48-4	Cobalt	3.3	B		P
7440-50-8	Copper	2.0	U		P
7439-89-6	Iron	22.6	U		P
7439-92-1	Lead	2.2	U		P
7439-95-4	Magnesium	26900			P
7439-96-5	Manganese	21.0			P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	8.1			P
7440-09-7	Potassium	11500			P
7782-49-2	Selenium	4.8	U		P
7440-22-4	Silver	1.0	U		P
7440-23-5	Sodium	46200			P
7440-28-0	Thallium	5.2	U		P
7440-62-2	Vanadium	2.3	B		P
7440-66-6	Zinc	1.1	U		P

12/14/01

Color Before: COLORLESS Clarity Before: CLEAR Texture: _____Color After: COLORLESS Clarity After: CLEAR Artifacts: _____

Comments: _____

8

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

Lab Name: COMPUCHEM

Method: 8260B

EFFLUENT

Lab Code: LIBRTY Case No.:

SAS No.:

SDG No.: RS1024

Matrix: (soil/water) WATER

Lab Sample ID: RS1024-1

Sample wt/vol: 25 (g/ml) ML

Lab File ID: RS1024-1B51

Level: (low/med) LOW

Date Received: 11/14/01

% Moisture: not dec.
GC Column: DB624 ID: 0.53 (mm)

Date Analyzed: 11/24/01

Soil Extract Volume: _____ (uL)

Dilution Factor: 1.0

Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
74-87-3-----	Chloromethane	0.5	U
75-01-4-----	Vinyl Chloride	0.5	U
74-83-9-----	Bromomethane	0.09	JB 0.5 u
75-00-3-----	Chloroethane	0.5	U
75-35-4-----	1,1-Dichloroethene	0.5	U
75-15-0-----	Carbon disulfide	0.5	U
67-64-1-----	Acetone	2100	E J
75-09-2-----	Methylene Chloride	3	B u
156-60-5-----	trans-1,2-Dichloroethene	0.5	U
75-34-3-----	1,1-Dichloroethane	0.5	U
156-59-2-----	cis-1,2-Dichloroethene	0.5	U
78-93-3-----	2-butanone	3	U R
67-66-3-----	Chloroform	0.5	U
71-55-6-----	1,1,1-Trichloroethane	0.5	U
56-23-5-----	Carbon Tetrachloride	0.5	U
71-43-2-----	Benzene	0.5	U
107-06-2-----	1,2-Dichloroethane	0.5	U
79-01-6-----	Trichloroethene	0.5	U
78-87-5-----	1,2-Dichloropropane	0.5	U
75-27-4-----	Bromodichloromethane	0.5	U
10061-01-5-----	cis-1,3-Dichloropropene	0.5	U
108-10-1-----	4-Methyl-2-pentanone	3	U
108-88-3-----	Toluene	0.2	J
10061-02-6-----	trans-1,3-Dichloropropene	0.5	U WJ
79-00-5-----	1,1,2-Trichloroethane	0.5	U
127-18-4-----	Tetrachloroethene	0.5	U
591-78-6-----	2-hexanone	3	U
124-48-1-----	Dibromochloromethane	0.5	U
108-90-7-----	Chlorobenzene	0.5	U
100-41-4-----	Ethylbenzene	0.5	U
108-38-3-----	m,p-Xylene	0.1	JB 0.5 u
95-47-6-----	o-Xylene	0.5	U
100-42-5-----	Styrene	0.5	U

FORM I VOA

Major

12

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM

Method: 8260B

Lab Code: LIBRTY Case No.:

SAS No.:

SDG No.: RS1024

Matrix: (soil/water) WATER

Lab Sample ID: RS1024-1

Sample wt/vol: 25 (g/ml) ML

Lab File ID: RS1024-1B51

Level: (low/med) LOW

Date Received: 11/14/01

% Moisture: not dec. _____

Date Analyzed: 11/24/01

GC Column: DB624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Q

75-25-2-----Bromoform	0.5	U
79-34-5-----1,1,2,2-Tetrachloroethane	0.5	U
106-46-7-----1,4-Dichlorobenzene	0.5	U
540-59-0-----1,2-Dichloroethene (total)	0.5	U
1330-20-7-----Xylene (total)	0.1	JB 0.5 U

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENTDL

Lab Name: COMPUCHEM

Method: 8260B

Lab Code: LIBRTY Case No.:

SAS No.:

SDG No.: RS1024

Matrix: (soil/water) WATER

Lab Sample ID: RS1024-1

Sample wt/vol: 25 (g/ml) ML

Lab File ID: RS1024-1DA51

Level: (low/med) LOW

Date Received: 11/14/01

% Moisture: not dec.

Date Analyzed: 11/26/01

GC Column: DB624 ID: 0.53 (mm)

Dilution Factor: 25.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Q

74-87-3-----Chloromethane	13	U
75-01-4-----Vinyl Chloride	13	U
74-83-9-----Bromomethane	13	U
75-00-3-----Chloroethane	13	U
75-35-4-----1,1-Dichloroethene	13	U
75-15-0-----Carbon disulfide	13	U
67-64-1-----Acetone	2500	D J
75-09-2-----Methylene Chloride	13	DB U
156-60-5-----trans-1,2-Dichloroethene	13	U
75-34-3-----1,1-Dichloroethane	13	U
156-59-2-----cis-1,2-Dichloroethene	13	U
78-93-3-----2-butanone	63	U
67-66-3-----Chloroform	13	U
71-55-6-----1,1,1-Trichloroethane	13	U
56-23-5-----Carbon Tetrachloride	13	U
71-43-2-----Benzene	13	U
107-06-2-----1,2-Dichloroethane	13	U
79-01-6-----Trichloroethene	13	U
78-87-5-----1,2-Dichloropropane	13	U
75-27-4-----Bromodichloromethane	13	U
10061-01-5-----cis-1,3-Dichloropropene	13	U
108-10-1-----4-Methyl-2-pentanone	63	U
108-88-3-----Toluene	13	U
10061-02-6-----trans-1,3-Dichloropropene	13	U
79-00-5-----1,1,2-Trichloroethane	13	U
127-18-4-----Tetrachloroethene	13	U
591-78-6-----2-hexanone	63	U
124-48-1-----Dibromochloromethane	13	U
108-90-7-----Chlorobenzene	13	U
100-41-4-----Ethylbenzene	13	U
108-38-3-----m,p-Xylene	2	DJB 13 u
95-47-6-----o-Xylene	13	U
100-42-5-----Styrene	13	U

FORM I VOA

1/24/01

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENTDL

Lab Name: COMPUCHEM

Method: 8260B

Lab Code: LIBRTY Case No.:

SAS No.: SDG No.: RS1024

Matrix: (soil/water) WATER

Lab Sample ID: RS1024-1

Sample wt/vol: 25 (g/ml) ML

Lab File ID: RS1024-1DA51

Level: (low/med) LOW

Date Received: 11/14/01

% Moisture: not dec.

Date Analyzed: 11/26/01

GC Column: DB624 ID: 0.53 (mm)

Dilution Factor: 25.0

Soil Extract Volume: _____ (uL)

Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Q

75-25-2-----Bromoform		13	U
79-34-5-----1,1,2,2-Tetrachloroethane		13	U
106-46-7-----1,4-Dichlorobenzene		13	U
540-59-0-----1,2-Dichloroethene (total)		13	U
1330-20-7-----Xylene (total)		3	DJB 13 U

FORM I VOA

10/24/01

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM

Contract:

Lab Code: LIBRTY Case No.:

SAS No.:

SDG No.: RS1024

Matrix: (soil/water) WATER

Lab Sample ID: RS1024-1

Sample wt/vol: 1090 (g/mL) ML

Lab File ID: RS1024-1A60

Level: (low/med) LOW

Date Received: 11/14/01

Moisture: _____ decanted: (Y/N) _____

Date Extracted: 11/16/01

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 11/23/01

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

HPLC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

111-44-4-----Bis(2-chloroethyl)ether	8.8	U
106-44-5-----4-Methylphenol	9.2	U
78-59-1-----Isophorone	9.2	U
117-81-7-----bis(2-ethylhexyl)Phthalate	1.8	JB 9.2U

FORM I SV

8270C

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM

Contract:

Lab Code: LIBRTY Case No.:

SAS No.:

SDG No.: RS1024

Matrix: (soil/water) WATER

Lab Sample ID: RS1024-1

Sample wt/vol: 1090 (g/mL) ML

Lab File ID: RS1024-1JA70

Level: (low/med) LOW

Date Received: 11/14/01

Moisture: _____ decanted: (Y/N) _____

Date Extracted: 11/16/01

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 11/27/01

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Q

CAS NO.	COMPOUND		
87-86-5-----	Pentachlorophenol	0.92	U

FORM I SV

121401

1D
GC EXTRACTABLE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Lab Name: COMPUCHEM

Contract: 8082 PCB

EFFLUENT

Lab Code: LIBRTY Case No.:

SAS No.:

SDG No.: RS1024

Matrix: (soil/water) WATER

Lab Sample ID: RS1024-1

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: _____

% Moisture: _____ decanted: (Y/N) _____

Date Received: 11/14/01

Extraction: (SepF/Cont/Sonc) SEPF

Date Extracted: 11/16/01

Concentrated Extract Volume: 5000(uL)

Date Analyzed: 11/26/01

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
---------	----------	--	---

12674-11-2-----	Aroclor-1016	0.25	U
11104-28-2-----	Aroclor-1221	0.50	U
11141-16-5-----	Aroclor-1232	0.25	U
53469-21-9-----	Aroclor-1242	0.25	U
12672-29-6-----	Aroclor-1248	0.25	U
11097-69-1-----	Aroclor-1254	0.25	U
11096-82-5-----	Aroclor-1260	0.25	U

**December 19, 2001 Compliance Sample
Laboratory Results**

SW-846

1-CC

CLASSICAL CHEMISTRY ANALYSES DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: CompuChem

Contract:

Lab Code: LIBRTY

Case No.:

NRAS No.:

SDG No.: RU1024

Matrix (soil/water): WATER

Lab Sample ID: RU1024-1

Date Received: 12/20/01

% Solids: 0.00

Concentration Units (mg/L or mg/kg dry weight): mg/L

PARAMETER	CONCENTRATION	C	Q	M	DATE ANALYZED
pH	6.93				12/21/01
TSS	10.0				12/21/01

Comments:

2

CHEMICAL & ENVIRONMENTAL
ENVIRONMENTAL ANALYTICAL SERVICES

FINAL REPORT OF ANALYSES

COMPUCHEM
Attn: DIANE BYRD
501 MADISON AVENUE
CARY, NC 27513-

REPORT DATE: 12/27/01

SAMPLE NUMBER- 192178 SAMPLE ID- EFFLUENT
DATE SAMPLLED- 12/19/01
DATE RECEIVED- 12/20/01 SAMPLER- NOT SPECIFIED
TIME RECEIVED- 1350 DELIVERED BY- CHRIS BRAND

SAMPLE MATRIX- GW
TIME SAMPLLED- 1400
RECEIVED BY- ALT

Page 1 of 1 PROJECT NAME : ACS-69

ANALYSIS	METHOD	DATE	BY	RESULT UNITS	PQL
BIOCHEMICAL OXYGEN DEMAND	EPA 405.1	12/21/01	LEB	25 mg/L	2

PQL = Practical Quantitation Limit

Results followed by the letter J are estimated concentrations.

NC DENR CERTIFICATIONS: DWQ - 96; PUBLIC WATER SUPPLY - 37724

LABORATORY DIRECTOR


12/2002

SW846 METALS

INORGANIC ANALYSIS DATA SHEET

EPA SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM

Contract:

Lab Code: LIBERTY

Case No.:

SAS No.:

SDG No.: RU1024

Matrix (soil/water): WATER

Lab Sample ID: RU1024-1

Level (low/med): LOW

Date Received: 12/20/01

% Solids: 0.0

Concentration Units (ug/L or mg/kg dry weight): UG/L

CAS No.	Analyte	Concentration	C	Q	M
7429-90-5	Aluminum	26.5	B		P
7440-36-0	Antimony	6.0	B		P
7440-38-2	Arsenic	3.0	U		P
7440-39-3	Barium	96.1			P
7440-41-7	Beryllium	0.10	U		P
7440-43-9	Cadmium	0.20	U		P
7440-70-2	Calcium	82000			P
7440-47-3	Chromium	0.60	U		P
7440-48-4	Cobalt	3.5	B		P
7440-50-8	Copper	1.8	B		P
7439-89-6	Iron	1210			P
7439-92-1	Lead	1.2	U		P
7439-95-4	Magnesium	31100			P
7439-96-5	Manganese	193			P
7439-97-6	Mercury	0.10	U		CV
7440-02-0	Nickel	15.0			P
7440-09-7	Potassium	12000			P
7782-49-2	Selenium	2.8	B		P
7440-22-4	Silver	0.70	U		P
7440-23-5	Sodium	54300			P
7440-28-0	Thallium	3.4	U		P
7440-62-2	Vanadium	0.40	U		P
7440-66-6	Zinc	11.3	B		P

M3000

Color Before: COLORLESS Clarity Before: CLEAR Texture:

Color After: COLORLESS Clarity After: CLEAR Artifacts:

Comments:

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

Lab Name: COMPUCHEM

Method: 8260B

EFFLUENT

Lab Code: LIBRTY Case No.:

SAS No.:

SDG No.: RU1024

Matrix: (soil/water) WATER

Lab Sample ID: RU1024-1

Sample wt/vol: 25 (g/ml) ML

Lab File ID: RU1024-1B51

Level: (low/med) LOW

Date Received: 12/20/01

Moisture: not dec.

Date Analyzed: 12/31/01

GC Column: DB624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: (uL) Soil Aliquot Volume: (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Q

74-87-3-----Chloromethane	0.5	U
75-01-4-----Vinyl Chloride	0.5	U
74-83-9-----Bromomethane	0.09	J
75-00-3-----Chloroethane	0.5	U
75-35-4-----1,1-Dichloroethene	0.5	U
75-15-0-----Carbon disulfide	0.5	U
67-64-1-----Acetone	430	E
75-09-2-----Methylene Chloride	0.5	J
156-60-5-----trans-1,2-Dichloroethene	0.5	U
75-34-3-----1,1-Dichloroethane	0.5	U
156-59-2-----cis-1,2-Dichloroethene	0.5	U
78-93-3-----2-butanone	27	
67-66-3-----Chloroform	0.5	U
71-55-6-----1,1,1-Trichloroethane	0.5	U
56-23-5-----Carbon Tetrachloride	0.5	U
71-43-2-----Benzene	0.5	U
107-06-2-----1,2-Dichloroethane	0.5	U
79-01-6-----Trichloroethene	0.5	U
78-87-5-----1,2-Dichloropropane	0.5	U
75-27-4-----Bromodichloromethane	0.5	U
10061-01-5-----cis-1,3-Dichloropropene	0.5	U
108-10-1-----4-Methyl-2-pentanone	3	UJ
108-88-3-----Toluene	0.1	JB0.5U
10061-02-6-----trans-1,3-Dichloropropene	0.5	U
79-00-5-----1,1,2-Trichloroethane	0.5	U
127-18-4-----Tetrachloroethene	0.5	U
591-78-6-----2-hexanone	3	U
124-48-1-----Dibromochloromethane	0.5	U
108-90-7-----Chlorobenzene	0.5	U
100-41-4-----Ethylbenzene	0.5	U
108-38-3-----m,p-Xylene	1	U
95-47-6-----o-Xylene	0.5	U
100-42-5-----Styrene	0.5	U

FORM I VOA

M12002
12

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

Lab Name: COMPUCHEM

Method: 8260B

EFFLUENT

Lab Code: LIBRTY Case No.:

SAS No.:

SDG No.: RU1024

Matrix: (soil/water) WATER

Lab Sample ID: RU1024-1

Sample wt/vol: 25 (g/ml) ML

Lab File ID: RU1024-1B51

Level: (low/med) LOW

Date Received: 12/20/01

Moisture: not dec. _____

Date Analyzed: 12/31/01

GC Column: DB624 ID: 0.53 (mm)

Dilution Factor: 1.0

Soil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L Q

75-25-2-----Bromoform	0.5	U
79-34-5-----1,1,2,2-Tetrachloroethane	0.5	U
106-46-7-----1,4-Dichlorobenzene	0.5	U
540-59-0-----1,2-Dichloroethene (total)	0.5	U
1330-20-7-----Xylene (total)	0.5	U

FORM I VOA

1300

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

Lab Name: COMPUCHEM

Method: 8260B

EFFLUENTDL

Lab Code: LIBRTY Case No.:

SAS No.:

SDG No.: RU1024

Matrix: (soil/water) WATER

Lab Sample ID: RU1024-1

Sample wt/vol: 25 (g/ml) ML

Lab File ID: RU1024-1DB73

Level: (low/med) LOW

Date Received: 12/20/01

Moisture: not dec.

Date Analyzed: 01/03/02

GC Column: SPB-624 ID: 0.32 (mm)

Dilution Factor: 5.0

Oil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Q

74-87-3-----Chloromethane	3	U	U
75-01-4-----Vinyl Chloride	3	U	
74-83-9-----Bromomethane	3	U	
75-00-3-----Chloroethane	3	U	
75-35-4-----1,1-Dichloroethene	3	U	
75-15-0-----Carbon disulfide	3	U	J
67-64-1-----Acetone	240	DB	
75-09-2-----Methylene Chloride	1	DJB	311J
156-60-5-----trans-1,2-Dichloroethene	3	U	U
75-34-3-----1,1-Dichloroethane	3	U	
156-59-2-----cis-1,2-Dichloroethene	3	U	↓
78-93-3-----2-butanone	10	DJ	J
67-66-3-----Chloroform	3	U	U
71-55-6-----1,1,1-Trichloroethane	3	U	
56-23-5-----Carbon Tetrachloride	3	U	
71-43-2-----Benzene	3	U	
107-06-2-----1,2-Dichloroethane	3	U	
79-01-6-----Trichloroethene	3	U	
78-87-5-----1,2-Dichloropropane	3	U	
75-27-4-----Bromodichloromethane	3	U	
10061-01-5-----cis-1,3-Dichloropropene	3	U	
108-10-1-----4-Methyl-2-pentanone	13	U	
108-88-3-----Toluene	0.3	DJB	311J
10061-02-6-----trans-1,3-Dichloropropene	3	U	W
79-00-5-----1,1,2-Trichloroethane	3	U	
127-18-4-----Tetrachloroethene	3	U	
591-78-6-----2-hexanone	13	U	
124-48-1-----Dibromochloromethane	3	U	
108-90-7-----Chlorobenzene	3	U	
100-41-4-----Ethylbenzene	3	U	
108-38-3-----m,p-Xylene	0.5	DJB	311J
95-47-6-----o-Xylene	3	U	W
100-42-5-----Styrene	3	U	W

FORM I VOA

FORM 1
VOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

Lab Name: COMPUCHEM

Method: 8260B

EFFLUENTDL

Lab Code: LIBRTY Case No.:

SAS No.:

SDG No.: RU1024

Matrix: (soil/water) WATER

Lab Sample ID: RU1024-1

Sample wt/vol: 25 (g/ml) ML

Lab File ID: RU1024-1DB73

Level: (low/med) LOW

Date Received: 12/20/01

Moisture: not dec.

Date Analyzed: 01/03/02

GC Column: SPB-624 ID: 0.32 (mm)

Dilution Factor: 5.0

Oil Extract Volume: _____ (uL) Soil Aliquot Volume: _____ (uL)

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg)	UG/L	Q
75-25-2-----	Bromoform		3	U W
79-34-5-----	1,1,2,2-Tetrachloroethane		3	U
106-46-7-----	1,4-Dichlorobenzene		3	U
540-59-0-----	1,2-Dichloroethene (total)		3	U
1330-20-7-----	Xylene (total)	0.5	DJB 3	W

FORM I VOA

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

Lab Name: COMPUCHEM

Contract: 8270C

EFFLUENT

Lab Code: LIBRTY Case No.:

SAS No.:

SDG No.: RU1024

Matrix: (soil/water) WATER

Lab Sample ID: RU1024-1

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: RU1024-1JA64

Level: (low/med) LOW

Date Received: 12/20/01

Moisture: _____ decanted: (Y/N) _____

Date Extracted: 12/21/01

Concentrated Extract Volume: 1000(uL)

Date Analyzed: 12/21/01

Injection Volume: 1.0(uL)

Dilution Factor: 1.0

SPC Cleanup: (Y/N) N pH: _____

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Q

111-44-4-----Bis(2-chloroethyl)ether	9.6	U
106-44-5-----4-Methylphenol	10	U
78-59-1-----Isophorone	10	U
117-81-7-----bis(2-ethylhexyl)Phthalate	6	U

1/3062

FORM 1
SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

CLIENT SAMPLE NO.

EFFLUENT

Lab Name: COMPUCHEM

Contract: PHENOL-SIM

Lab Code: LIBRTY Case No.:

SAS No.:

SDG No.: RU1024

Matrix: (soil/water) WATER

Lab Sample ID: RU1024-1

Sample wt/vol: 1000 (g/mL) ML

Lab File ID: RU1024-1B70

Level: (low/med) LOW

Date Received: 12/20/01

% Moisture: _____ decanted: (Y/N) _____

Date Extracted: 12/21/01

Concentrated Extract Volume: 1000 (uL)

Date Analyzed: 12/27/01

Injection Volume: 1.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

CAS NO.

COMPOUND

CONCENTRATION UNITS:
(ug/L or ug/Kg) UG/L

Q

87-86-5-----Pentachlorophenol

0.061

J

1/30/02

FORM I SV

1D
GC EXTRACTABLE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

Lab Name: COMPUCHEM

Contract: 8082 PCB

EFFLUENT

Lab Code: LIBRTY Case No.:

SAS No.:

SDG No.: RU1024

Matrix: (soil/water) WATER

Lab Sample ID: RU1024-1

Sample wt/vol: 1050 (g/mL) ML

Lab File ID: _____

% Moisture: _____ decanted: (Y/N) _____

Date Received: 12/20/01

Extraction: (SepF/Cont/Sonc) SEPF

Date Extracted: 12/20/01

Concentrated Extract Volume: 5000 (uL)

Date Analyzed: 12/21/01

Injection Volume: 2.0 (uL)

Dilution Factor: 1.0

GPC Cleanup: (Y/N) N pH: _____

Sulfur Cleanup: (Y/N) N

CAS NO.	COMPOUND	CONCENTRATION UNITS: (ug/L or ug/Kg) UG/L	Q
12674-11-2-----	Aroclor-1016	0.24	U
11104-28-2-----	Aroclor-1221	0.48	U
11141-16-5-----	Aroclor-1232	0.24	U
53469-21-9-----	Aroclor-1242	0.24	U
12672-29-6-----	Aroclor-1248	0.24	U
11097-69-1-----	Aroclor-1254	0.24	U
11096-82-5-----	Aroclor-1260	0.24	U

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